

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number  
WO 2004/010394 A2

(51) International Patent Classification<sup>7</sup>: G08B  
(21) International Application Number: PCT/GB2003/003114  
(22) International Filing Date: 16 July 2003 (16.07.2003)  
(25) Filing Language: English  
(26) Publication Language: English  
(30) Priority Data: 0216835.9 19 July 2002 (19.07.2002) GB

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

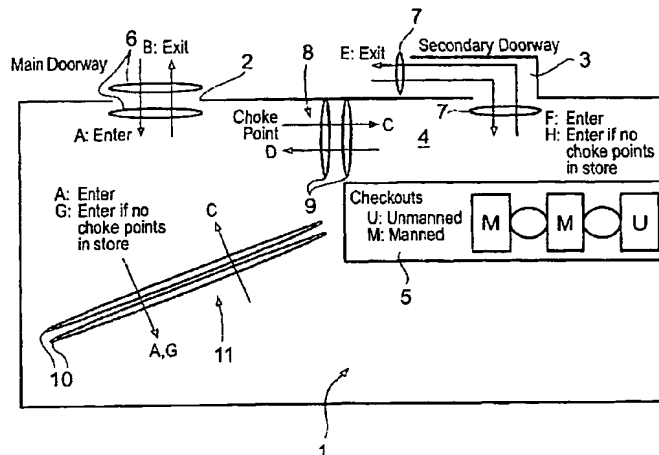
Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(71) Applicant (*for all designated States except US*): ACTIVIFER LIMITED [GB/GB]; Downing Park Innovation Centre, Swaffham Bulbeck, Cambridge CB5 0NB (GB).  
(72) Inventor; and  
(75) Inventor/Applicant (*for US only*): HUNT, Stephen, William [GB/GB]; 17 High Street, Orwell, Nr. Royston, Cambridgeshire SG8 5QN (GB).  
(74) Agent: HARRISON GODDARD FOOTE; Belgrave Hall, Belgrave Street, Leeds LS2 8DD (GB).

(54) Title: IMPROVEMENTS RELATING TO SECURITY AND ELECTRONIC ARTICLE SURVEILLANCE



(57) Abstract: There is disclosed a security device, a security system and a method of providing security in a retail environment or the like. Shopping trolleys associated with the retail environment are fitted with security devices having a receive-only wireless receiver and a processor, the receiver receiving wireless signals transmitted from one or more transmitters located at various locations around the retail environment. By analysing the wireless signals as it passes thereby, the processor of the security device can determine a location and/or a direction of travel of a shopping trolley to which it is fitted. In addition, an alarm signal may be raised if a predetermined signal or sequence of signals is detected. The alarm signal may cause activation of a wheel locking device on the trolley and/or may cause an alarm device to generate an audible or visual alarm signal. Embodiments of the present invention provide a relatively low cost security and trolley tracking system.

BEST AVAILABLE COPY

WO 2004/010394 A2

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number  
**WO 2004/010394 A3**

(51) International Patent Classification<sup>7</sup>: **G07G 3/00**,  
G08B 13/18

(21) International Application Number:  
PCT/GB2003/003114

(22) International Filing Date: 16 July 2003 (16.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0216835.9 19 July 2002 (19.07.2002) GB

(71) Applicant (for all designated States except US): **ACTIVERF LIMITED** [GB/GB]; Downing Park Innovation Centre, Swaffham Bulbeck, Cambridge CB5 0NB (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HUNT, Stephen, William** [GB/GB]; 17 High Street, Orwell, Nr. Royston, Cambridgeshire SG8 5QN (GB).

(74) Agent: **HARRISON GODDARD FOOTE**; Belgrave Hall, Belgrave Street, Leeds LS2 8DD (GB).

(81) Designated States (national): AE, AG, AI., AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

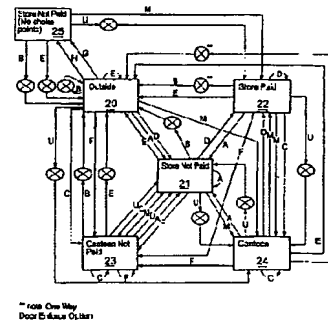
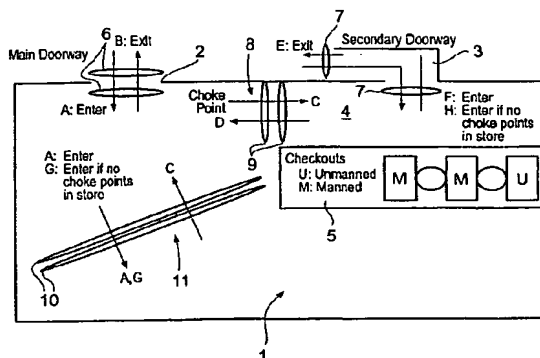
## Published:

— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
8 April 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: IMPROVEMENTS RELATING TO SECURITY AND ELECTRONIC ARTICLE SURVEILLANCE



(57) Abstract: There is disclosed a security device, a security system and a method of providing security in a retail environment or the like. Shopping trolleys associated with the retail environment are fitted with security devices having a receive-only wireless receiver and a processor, the receiver receiving wireless signals transmitted from one or more transmitters located at various locations around the retail environment. By analysing the wireless signals as it passes thereby, the processor of the security device can determine a location and/or a direction of travel of a shopping trolley to which it is fitted. In addition, an alarm signal may be raised if a predetermined signal or sequence of signals is detected. The alarm signal may cause activation of a wheel locking device on the trolley and/or may cause an alarm device to generate an audible or visual alarm signal. Embodiments of the present invention provide a relatively low cost security and trolley tracking system.

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 03/03114

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G07G3/00 G08B13/18

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07G 608B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 126 421 A (HYDROCLEAN RETAIL MAINTENANCE) 22 August 2001 (2001-08-22) the whole document	1-49
Y	WO 99 59112 A (WALKER NIGEL JOHN ;TAGGA LTD (GB); WHELAN BRIAN (GB)) 18 November 1999 (1999-11-18) page 2, line 15 -page 3, line 5; claim 14; figure 1 page 4, line 5 -page 4, line 29 page 6, line 9 -page 6, line 21 page 7, line 10 -page 7, line 22	2-46
A	GB 2 355 156 A (ACTIVERF LTD) 11 April 2001 (2001-04-11) page 12, line 12 -page 14, line 21; claim 5; figure 4	1, 2, 19, 34

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

\*Z\* document member of the same patent family

Date of the actual completion of the international search

9 February 2004

Date of mailing of the international search report

16/02/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2200 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Ruester, H-B

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/03114

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 199 43 549 A (ZIMMERMANN THOMAS) 22 March 2001 (2001-03-22) the whole document ---	2-46
Y	GB 2 347 493 A (HIGGS RAY) 6 September 2000 (2000-09-06) the whole document -----	

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

page 2 of 2

BEST AVAILABLE COPY

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No  
PCT/GB 03/03114

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1126421	A	22-08-2001	GB 2359455 A EP 1126421 A2 US 2001017588 A1	22-08-2001 22-08-2001 30-08-2001
WO 9959112	A	18-11-1999	AU 3937199 A EP 1078338 A1 WO 9959112 A1	29-11-1999 28-02-2001 18-11-1999
GB 2355156	A	11-04-2001	AU 7541800 A CA 2420975 A1 EP 1221151 A1 WO 0127891 A1	23-04-2001 19-04-2001 10-07-2002 19-04-2001
DE 19943549	A	22-03-2001	DE 19943549 A1	22-03-2001
GB 2347493	A	06-09-2000	NONE	

Form PCT/ISA/210 (patent family annex) (July 1992)

BEST AVAILABLE COPY